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PORTUGUESE EMIGRATION AND THE BRAIN DRAIN: THE POWER OF MOVEMENT

Michael Gallucci

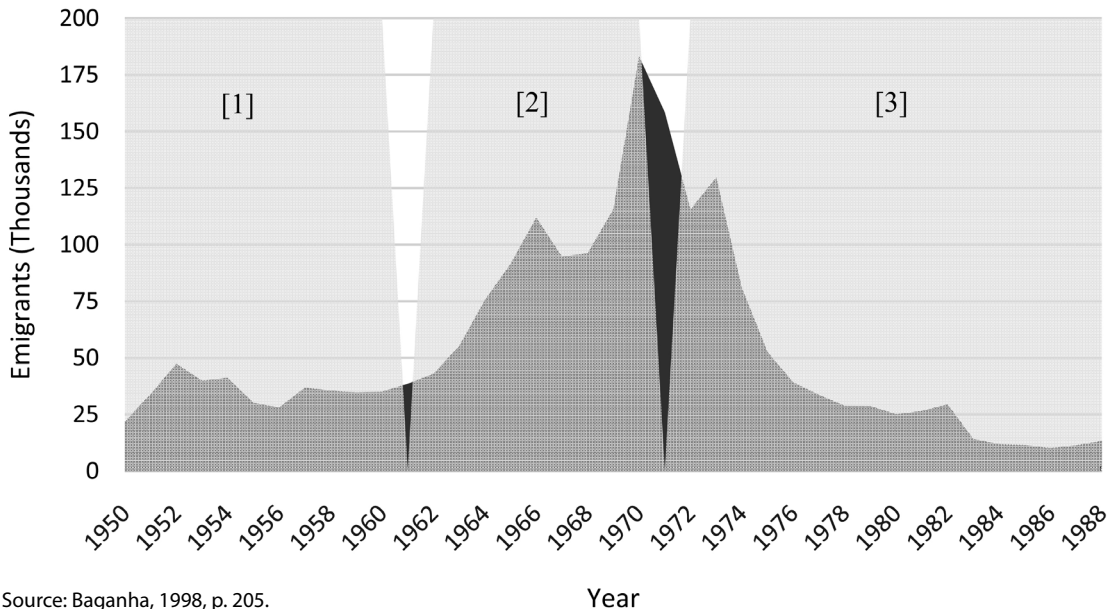


Introduction

"The brain drain," a phrase discussed in media articles and research articles alike, is an interesting and complex part of Portugal's past, present, and future. Although many nations have experienced a brain drain, reports with titles such as "Portugal's Jobless Graduates Flee to Africa and Brazil" (Ash), "Portugal's Brain Drain as Graduates Flee Austerity" (Morris et al.), and "Will the Portuguese Be Extinct by 2204?" (Silvestre) are more than enough to paint a fearful picture of the subject. Beine and colleagues define the brain drain as "the international transfer of resources in the form of human capital..." (p.631). The phenomenon usually applies to workers with either a high skill level or a high education level. The brain drain is experienced by almost every nation and is especially prevalent in today's highly integrated global network. From the definition by Beine and colleagues, it is clear that emigration (movement of human capital out of

a country) is at the heart of the brain drain. One of the most interesting facets of emigration is its double-edged nature. Many view emigration as an opportunity for emigrants to pick up new skills and abilities abroad and then apply these skills upon returning to their homeland. However, if enough emigrants decide not to return, the source country will experience a permanent deficit in human capital. Depending on a country's size, economic status, and myriad other factors, the drain can then be viewed as either a gateway to long-term growth or a constant deficit that needs to be mitigated. Portugal has traditionally benefited from emigration since the 1500s, when ships from the Portuguese Empire sailed to colonize Brazil. However, in recent years emigration seems to have become more of a detriment than a catalyst for growth in Portugal. From 2008 to 2012, both the rising unemployment rate in Portugal and the rising emigration rate reached record numbers.

Figure 1
Portuguese Emigration between 1950 and 1988



Source: Baganha, 1998, p. 205.

In this article, I first examine the history of emigration from Portugal and show that the current emigration trend is similar to a dramatic trend observed in Portugal's past. Furthermore, history shows that the likelihood that Portuguese emigrants will return, a phenomenon known as "circular migration," is low and cannot be relied on as a remedy for the emigration losses. Lastly, I analyze the present value of the earnings of all high-skilled emigrants from Portugal from 2008 to 2012 and show that, even in the best case scenario, Portugal is losing more than €0.9 billion per year as a result of emigration.

Portugal: A History of Movement

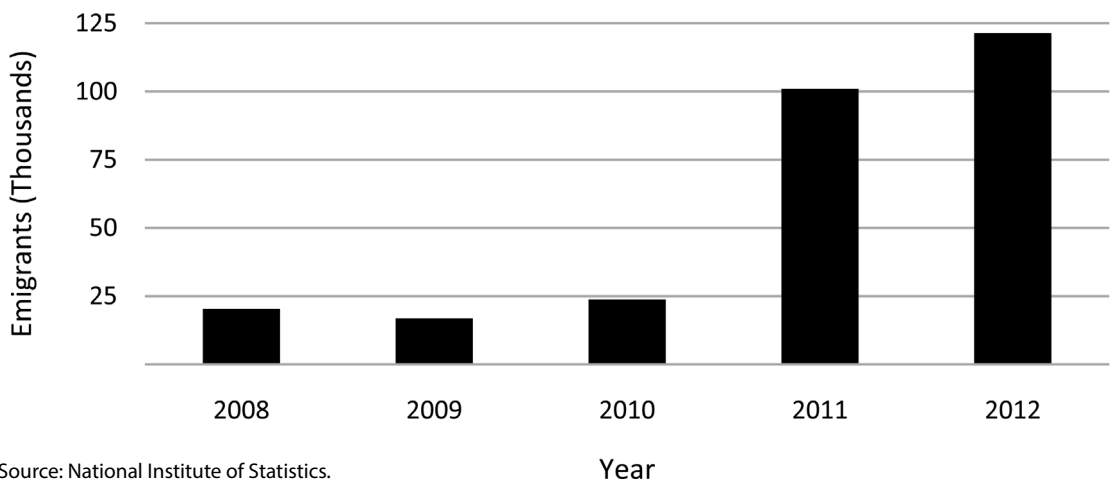
The Portuguese people have frequently migrated both to and from their home country for many years. Serrão (p. 597) believes the Portuguese colonization of Madeira in 1425 sparked the beginnings of a migration phenomenon that, despite initially being simply a means of territorial expansion, became a way of life for the Portuguese people.

I now move to the twentieth century and examine some of the causes for the migration

patterns Portugal had experienced during that time. The primary reason for twentieth century migration was economic, and the Portuguese had to frequently search abroad to find work and support their families (Solsten, p. 75). Baganha's (1998) analysis of the migratory flows to and from Portugal are also based on this concept of a migration culture that changes according to the demand for labor in neighboring countries (p. 189). The relatively constant level of emigration between the years 1950 and 1960 is labelled as [1] in Figure 1. This period serves as a useful reference with which to compare the two migration periods.

The mid-to-late 1960s were a tumultuous time for both Portugal and its surrounding European countries. Labeled as [2] in Figure 1, one of the largest emigratory spikes in Portuguese history occurred during these years, with emigration peaking at over 180,000 in 1970. World War II, which ended in 1945, was the catalyst for the Portuguese migration levels during those years. The major causes for emigration in particular were the policies and pushes for Southern Europe to help repair the destruction of Northern Europe caused by the war. One of the primary policies that

Figure 2
Portuguese Emigration from 2008 to 2012



stimulated Portugal's labor flow was known as the Marshall Plan. This four-year initiative gave Europe the necessary capital it needed to implement its own economic recovery plans. After the Marshall Plan, the European Economic Community continued to issue eight million work permits among various countries from 1958 to 1973 (Baganha, 1998, p. 190). The initiative to make up for labor shortages was led mainly by France and the Federal Republic of Germany (Encyclopedia of the Nations...). Even though permits began to be issued in 1958, Portugal did not participate significantly in the European Economic Community's initiative until the early 1960s. The rapid increase in emigration during period [2] in Figure 1 shows Portugal's response to the mass call for labor in Northern Europe as well as a response to the economic boom experienced by Europe during this time (Solsten, p. 79).

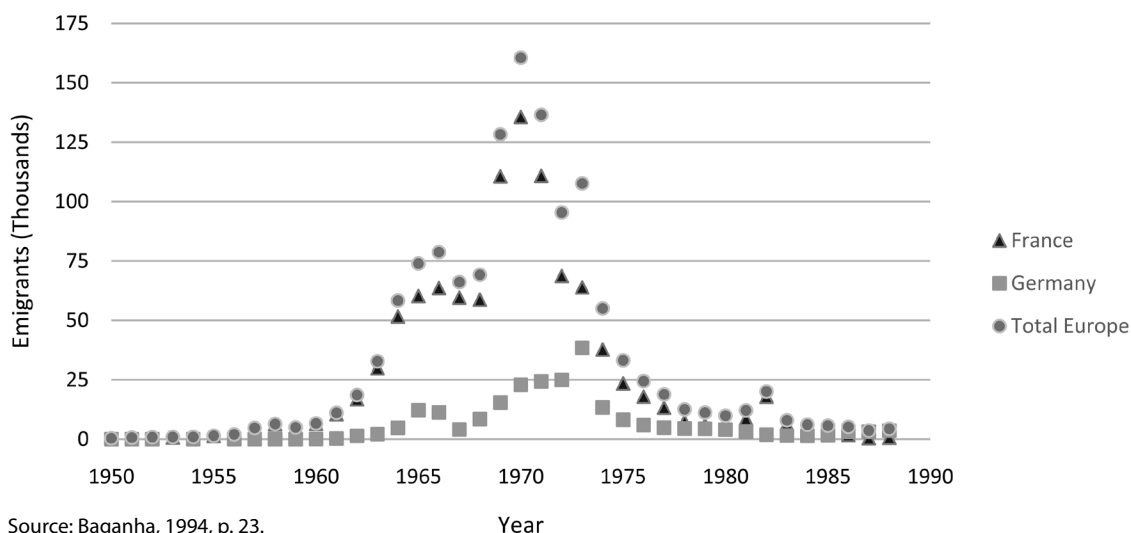
This increase in emigration would likely have continued after 1970. However, due to various political and economic shocks, such as the 1973 oil crisis and the loss of Portugal's colonies in Africa, Portuguese migration dropped to a fraction of its 1970 peak in only eight years. The Oil Embargo of 1973 was a political move during the Arab-Israeli War in which the nations of OPEC imposed an oil embargo on the U.S. as well

as on other countries that supported Israel. This embargo both weakened the economies of various European countries and reduced job opportunities for foreign workers (Solsten, p. 75). After 1974, immigration policies became more strict, eventually serving as barriers to migration (Baganha et al., p. 419). On the international front, the Portuguese Colonial War ended in 1974, and as a result Portugal lost control of its colonies in Africa. In 1975, more than 700,000 Portuguese colonials returned to Portugal (Encyclopedia of the Nations...). In the span of three years, Portugal lost both of its major national and international means of migration. Period [3] in Figure 1 shows that emigration dropped from 120,000 to 30,000 in just three years.

After 1978 emigration dropped to around 20,000 per year and remained under that level for most of the 1980s.¹ However, starting in 2011, emigration spiked to a level greater than anything recorded since 1970. Data gathered from the National Institute of Statistics (Figure 2) show that more than 100,000 people left Portugal in each of the years 2011 and 2012.

¹I could not find any data for emigration from 1990 to 2000 in the major migration databases, which made it difficult to study. Pordata Statistics Database began displaying migration data from 2000 onwards, but the emigration spike did not begin until 2008 (see Figure 2). Therefore, 1990–2007 is not discussed in this article.

Figure 3
Destination of Portuguese Emigrants from 1950 to 1988



Source: Baganha, 1994, p. 23.

This rise in emigration seems to match the rise in emigration that occurred in period [2], and, if the level continues to increase, Portugal can expect even more emigrants in the coming years. Does the fact that more people each year are emigrating predict a grim future for Portugal? Or is it simply a cyclical phenomenon that will have no long-term effects on the country? To answer these questions, I analyze the likelihood that emigrants will return to Portugal, followed by a quantitative analysis of the economic losses resulting from Portugal's skilled emigration.

Cyclical Migration

The notion that a group of people will return to their home country a few years after emigrating is known as cyclical migration. Although emigration to both the Americas and to Portugal's colonies in the years before 1974 was largely permanent (Mendonsa, p. 2), Portugal's workers have migrated to and from various countries in Europe for much of its history. For example, circular migration could be observed in the community of Nazaré, which sits north of Lisbon, for many years. Eugene Mendonsa, a Ph.D. graduate from the University of Cambridge with a focus in

social anthropology, investigates the observed benefits of cyclical migration using Nazaré as a focal point for his research. In 1973, 5% of Portugal's total emigrant population came from Nazaré (Keefe, pp. 86–103). During the winter, the fishermen would leave Portugal to seek maritime employment and return to Nazaré in the summer when Portugal's oceans were more profitable (Mendonsa, p. 2).

The conclusion I draw from the case of Nazaré is that circular migration can provide many benefits to the economy when the return migration rate is high. For example, Mendonsa shows that 88% of migrating Portuguese from Nazaré own "productive capital" (this is capital such as a store, a van, or other materials to help build a business). Conversely, only 38% of non-migrants were reported to own such capital. Additionally, emigrants usually experience higher income levels and savings than non-emigrants. These benefits only occur, however, if enough migrate back to Portugal. Although many of Nazaré's residents successfully engaged in cyclical migration, I show that a majority of Portugal's emigrants are not likely to return to Portugal. I study France and Germany, the two largest destinations for Portuguese emigration in the late 1900s (Baganha, 1994) and use

the observed trends within those countries as support for this assertion.²

Figure 3 shows data for the (European) destinations of all recorded Portuguese emigrants between the years 1950 and 1988. From the mid-1960s to the 1970s, a large percentage of Portuguese emigrants chose France as their destination. By taking all the emigrants between 1960 and 1975 in Figure 3, I calculate that Portuguese emigration to France comprised 80% of total Portuguese emigration in Europe during that time. I undertake the same analysis for Germany and find that it was the destination country for 17% of all Portuguese emigrants during those same years. This makes the Portuguese populations in both France and Germany a good sample for studying the general behavior of Portuguese emigrants.

Figure 3 is crucial to my argument for circular migration because it shows not only the destinations of intra-European emigration but also the magnitude of emigration. As in Figure 1, there is a large spike of emigrants from 1960 to 1975. These levels are extremely large, reaching 160,000 people in 1970. Before and after this time period, an appreciable number of emigrants are seen in neither France nor Germany. If the majority of Portuguese practiced circular migration, I would expect to see a large number of people leave France and Germany to return to Portugal 5 to 15 years after the emigration spike previously described. With the help of various databanks and publications on foreign-born populations within Europe, I can track the number of Portuguese-born citizens in both countries over time. If there is not a substantial number of Portuguese leaving either of those countries in the years following the massive influx of the 1970s, it is reasonable to conclude that the majority of Portuguese permanently emigrated.

Records show that the number of Portuguese who lived in France in the

years 1975, 1982, and 1990 were 759,000, 767,000, and 649,000, respectively ("Trends in International Migration," p. 193). From these numbers, I gather that in 15 years the total number of native-born Portuguese in France drops by only about 110,000. To put this in perspective, the combined number of Portuguese emigrants to France from 1965 to 1973 (8 years) is approximately 735,000. If the rate of return to Portugal were high, I should see a higher percentage change over such a long time period, especially since there was almost no migration observed after the spike. This indicates that a large majority of these people settled in France permanently.

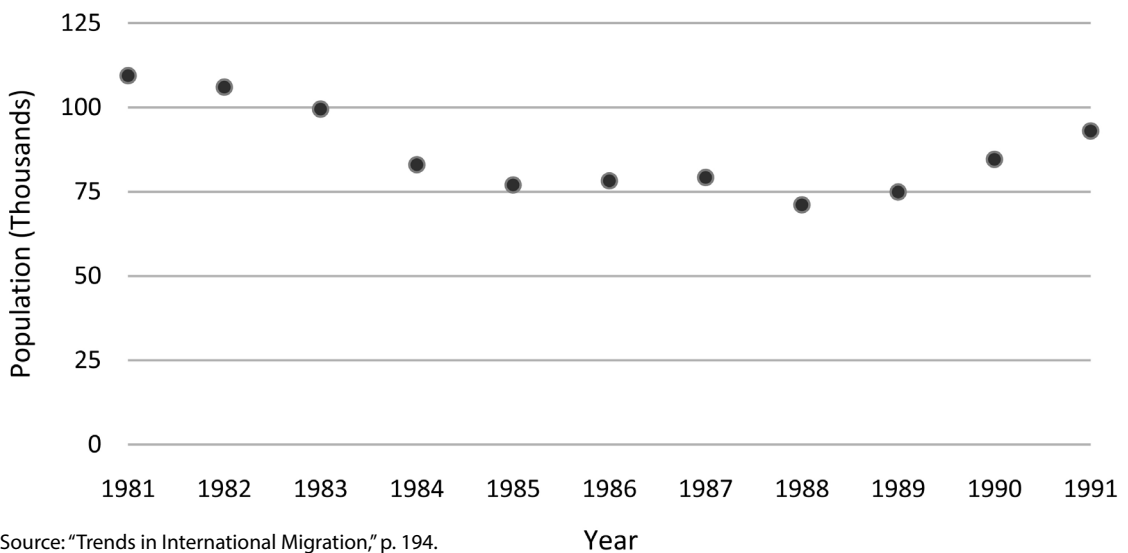
I performed a similar analysis for Germany. Data (also taken from "Trends in International Migration") for Germany as the target country for Portuguese emigrants can be seen in Figure 4³: the number of Portuguese-born citizens in Germany drops only about 30% between 1982 and 1988. Because of the low levels of Portuguese migration from both France and Germany, I conclude that a majority of the Portuguese emigrants have little intention of returning to their home country.

These studies of France and Germany show that Portugal's emigrants have historically not been likely to return within a decade after migration. Why is this? And is there anything that suggests that today's emigrants will behave in the same way? The Focus Migration Database gives a detailed profile of the immigration history of France, and it emphasizes that most of the Portuguese emigrants in France persuaded their families to join them instead of returning to Portugal. Quite simply, it was not worth the risk to go back when the emigrants already had job opportunities in their new homes. The Portuguese are shown to have a high aversion to risk-taking (Burton); and the data from both France and Germany confirm that if the job market in Portugal is poor, then emigrants will elect to stay in their current positions rather than risk returning to Portugal and not finding work. With an overall unemployment rate of

²In this article I deal only with reported emigration and immigration. It is almost certain that a large number of emigrants were unreported in the statistics. Between 1950 and 1988, approximately 777,000 Portuguese appeared in France and Germany who were not counted in the Portuguese statistics (Baganha et al., p. 7). It is, therefore, wise to view all data as underestimates.

³Data for Germany were not available in "Trends in International Migration" any time before 1980, so only the years 1980 to 1992 were taken into account.

Figure 4
Native-Born Portuguese in Germany (1981–1991)



16.2% (Pordata...) and a youth unemployment rate of 34.9% (YCharts) in 2012, the scenario that most Portuguese emigrants will return to Portugal after working abroad does not seem a likely one.

In moderation, emigration can be a powerful means for increasing a country's human capital in terms of work experience, GDP contribution, and savings. However, problems occur when the emigrants fail to return to their home country. As shown by past data, a majority of Portuguese emigrants did not return to Portugal.

Analyzing Economic Losses as a Result of Emigration

The goal of this section is to examine the economic losses to Portugal from emigration. In order to find these answers from the wealth of research on the brain drain, it is imperative to identify the best way to analyze the Portuguese emigration data available. Articles published in the 1960s had taken a relatively optimistic stance concerning the brain drain, arguing that although the home country suffers from emigration in the short run, it would experience relatively small long-

term losses (Grubel and Scott, p. 274). For example, Berry and Soligo (1969) analyzed capital owned by emigrants and concluded that emigration will only cause an economic loss to the remaining population if the emigrants have either high ownership of capital stock or high wealth-holding propensities (Berry and Soligo, p. 792). Others have concluded that the average product of labor and per capita income will fall as a result of emigration of educated labor (Bhagwati and Hamada, p. 41). Many of these studies observe general emigration trends across a large number of countries and do not analyze any one country in isolation. I focus on the economic losses that result from Portuguese emigration. In particular, I estimate the losses that Portugal is experiencing due to emigration of highly skilled workers. The aim is to calculate the total present value of the wages of all highly skilled workers leaving Portugal. If I assume that no emigrants from Portugal will return, then that means Portugal loses their economic contribution not only for the year they left but also for every year afterwards until they would have been expected to stop working. Equation 1, a variant of the equation applied in economics to calculate the present value of an annuity (Investopedia),

is used for this purpose. The equation can be used in combination with migration data to find the total losses (present and future) that Portugal is incurring as a result of permanent emigration.

$$PV = \frac{W-Re}{d-g} \left[1 - \left(\frac{1+g}{1+d} \right)^n \right] \quad (\text{Eq. 1})$$

In equation 1, W is the yearly wage of the worker and Re is the average level of remittances sent home per year. Re represents money that gets sent back to Portugal and thus does not count as an economic loss. The variables, g and d , are the average annual growth rate of the wage and the discount (or interest) rate, respectively. The wage growth rate was calculated from the average wage level of highly skilled workers from Pordata and found to be 2.1% per year. Also from Pordata, the average interest rate for individual loans from the years 2008 to 2012 is 5.7%. Lastly, n is the number of years an emigrant is expected to work, which I have assumed to be 40 years.

Equation 1 expresses the present value of earnings for only one emigrant, so I expand this to account for all emigrants leaving Portugal. It is also important to realize that some emigrants who left Portugal would not have found jobs. Therefore, I cannot assume that every emigrant would be employed and thus represent losses that Portugal is experiencing. Correcting for both of these is a relatively simple task and can be done by multiplying equation 1 by both the employment rate and the number of emigrants leaving Portugal in that year. Therefore, the total losses in one year can be estimated from equation 2:

$$\text{Losses} = (PV)(1 - U)(Em) \quad (\text{Eq. 2})$$

Here, U is the unemployment rate for a given year and Em is the number of highly skilled emigrants for that year. This equation yields the net present value of all highly skilled workers who are leaving Portugal from the year they leave until they are expected to retire.⁴

⁴It is important to note that this equation does not account for illegal emigrants. Additionally, it only takes into account highly skilled emigrants. The results, therefore, are a largely conservative estimate.

Equations 1 and 2 include a total of four variables that require Portuguese data. The variable names, symbols, and method of data collection are as follows (see Appendix):

- 1) Wage (W)—Ideally, I would like to get data for the wages of Portuguese highly skilled workers when they begin work in their host country. I assume these emigrants are younger and will remain in the workforce for 40 years. As a consequence, using a mid-career wage would result in an overestimate of the losses. However, Statistics Portugal, the Portuguese center for statistical information, did not have the average wages of Portuguese highly skilled workers for different age groups in its database. Instead, I use two different data sets to provide both high and low estimates for wages. I decided to use statistics concerning Portuguese college graduates as a proxy for highly skilled workers. The average wages for all Portuguese with a bachelor's degree provide a high estimate for the wages that emigrants would receive, since these averages include workers who have been in the labor force for a longer period of time than the typical emigrant. I also use the average wages for Portuguese workers between 25 and 34 years old as the low estimate. Both data sets were found in Statistics Portugal.
- 2) Remittance level (Re)—This is calculated by dividing the yearly amount of remittances by the number of Portuguese emigrants (Pordata...).
- 3) Unemployment rate (U)—Once again, unemployment data for highly skilled workers are difficult to find. Therefore, I use college graduates as a proxy here as well. I use the reported yearly unemployment rate for Portuguese citizens who have a college degree (Pordata...).
- 4) Emigration level of all the high-skilled workers (Em)—I also cannot specify this variable directly. I did not find data reporting emigration

Table 1
Results of Applying Equation 2 to Migration Data

Year	<u>Low Income Estimate</u>		<u>High Income Estimate</u>	
	Losses (Billion €)	Losses as % of Total Capital Wealth	Losses (Billion €)	Losses as % of Total Capital Wealth
2008	0.92	0.42	1.39	0.63
2009	0.77	0.36	1.17	0.55
2010	1.11	0.52	1.60	0.75
2011	1.63	0.79	2.00	0.97
2012	2.10	0.90	3.14	1.35

Source: The World Bank, p. 162.

levels sorted by the skill level of the emigrant. However, I can estimate this value by once again using college graduates as a proxy for the highly skilled worker population. Data taken from the 2010–2011 (most recent) edition of the OECD migration data bank (OECD) give a sample set of Portuguese emigrants from those years, along with their education level and age. From these data, I estimate that 30% of Portuguese emigrants aged 15 to 34 years old possess a college degree. I then take the permanent emigration level from that age bracket (Pordata...) and multiply it by 0.3 to come up with an estimate for the emigration level of highly skilled workers in Portugal.

Results

Due to the limited availability of some of the data, I only estimate the losses from 2008 to 2012. Additionally, I only take into account permanent emigrants. It is therefore likely that, because I have not considered the entire emigrating population or any undocumented workers, the actual value of economic losses is higher than what is reported in this article. The results of estimating Equation 2 are shown in Table 1.

Table 1 shows the value of economic losses (the direct application of Equation 2) and economic losses as a percentage of total capital wealth for the two different wage level estimates of the Portuguese workers. The total capital wealth was taken from The World Bank (p. 162) and includes both human and natural capital in its estimate.

Table 1 shows the total losses that Portugal is experiencing from the emigration of these workers, which grows from €0.92 to €1.39 billion in 2008 to €2.1 to €3.14 billion in 2012. Furthermore, in 2012 the losses calculated range from 0.90% to 1.35% of Portugal's total capital wealth for that year.

Should We Care?

It is clear from this analysis that small losses generated by a large number of people can have a substantial effect on the economic losses of Portugal. However, reversing these effects can (in theory) be surprisingly easy. I can take the present-value calculations from 2012 and show that if only 5,000 fewer people had emigrated, then Portugal's losses would decline by €1 billion in both the high wage and low wage scenarios. Given these numbers and the fact that my calculations underestimate the real losses due to emigration, additional government spending on infrastructure and programs to help decrease emigration could

prove beneficial to Portugal in the long term.

One additional point that should be considered is the effect that having more Portuguese remain in the country would have on the tax dollars collected by the government. For the income levels that I have used in this calculation, the income tax rate as reported by the Portuguese Personal Income Tax Code is 28.5% (KPMG Portuguese Tax Code). This means that if I assume that, once again, 5,000 people had decided to stay in Portugal, the government would collect an additional €2 million in income taxes per year (assuming that the 5,000 people were all employed). And if Portugal were then to invest more money in infrastructure to create jobs, the cost of the projects would be greatly mitigated by the extra tax dollars collected from the public.

Unfortunately, a subject such as emigration is complicated, and it would be naïve to think that a simple solution exists. The high unemployment rate for college graduates in Portugal is one of the chief reasons that there are so many emigrants (Pordata...). Another factor that may be hindering the creation of jobs and opportunities for these young graduates is a cultural sense of risk aversion, discouraging them from creating new opportunities in Portugal and instead using the European Union's liberal emigration policies to find opportunities elsewhere. Regardless of the reason, the brain drain is a phenomenon often talked about but rarely quantified. Certainly more research should be undertaken on this phenomenon, and various reforms and incentives should be considered to help curb the rising emigration rate in Portugal.

Appendix

Data and Results for Equation 2

Low Wage Estimate

Year	Emigrants	Average Yearly Wage (€)	Unemployment Rate	Remittances per Emigrant (€)	Total Losses (Billion €)
2008	4,243	11,148	0.07	2.33	0.92
2009	3,523	11,249	0.06	2.21	0.77
2010	4,952	11,595	0.07	2.35	1.11
2011	6,205	13,871	0.09	2.43	1.63
2012	9,944	11,453	0.12	2.70	2.10

High Wage Estimate

Year	Emigrants	Average Yearly Wage (€)	Unemployment Rate	Remittances per Emigrant (€)	Total Losses (Billion €)
2008	4,243	16,898	0.07	2.33	1.39
2009	3,523	17,040	0.06	2.21	1.17
2010	4,952	16,730	0.07	2.35	1.60
2011	6,205	17,040	0.09	2.43	2.00
2012	9,944	17,138	0.12	2.70	3.14

Source: OECD. Stat; Pordata...

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